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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/717,535	11/21/2000	Harri Holma	975.315USW1	5821
32294	7590	11/15/2005	EXAMINER	
SQUIRE, SANDERS & DEMPSEY L.L.P.			FERRIS, DERRICK W	
14TH FLOOR			ART UNIT	
8000 TOWERS CRESCENT			PAPER NUMBER	
TYSONS CORNER, VA 22182			2663	

DATE MAILED: 11/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No. ✓

09/717,535

Applicant(s)

HOLMA ET AL

Examiner

Derrick W. Ferris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/26/2005 has been entered.

Response to Arguments

2. This Office action is in response to applicant's paper filed 9/28/2005. **Claims 19-30** as amended are still in consideration for this application. Applicant has amended claims 21-22, 24-25. Applicant has added claims 26-30.

3. Examiner **withdraws** the 112-second paragraph rejection. Examiner thanks applicant for making the necessary corrections.

4. Examiner **withdraws** the obviousness rejection to *Haartsen* in view of *Scott*.

Based on the interview with applicant it was clear that the following are the main limitations at issue between the examiner and applicant with respect to independent claims 19 and 20:

“transmission in said first direction occurs in *predetermined and fixed time slots* (TS[j] in each of consecutive frames (F[i], F[I+1]) and

transmission in said second direction occurs in *different time slots* (Ts[k]. Ts[1] in each of consecutive frames F[i], F[i+1])”

The examiner also noted in the Interview summary that both of the above limitations would be addressed in the instant Office action. In summary, applicant had originally presented *and*

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claimed three different embodiments with respect to time hopping where the first embodiment consisted of time hopping in only the downlink direction (see applicant's figure 4), the second embodiment consisted of time hopping in the uplink direction (see applicant's figure 5), and the third embodiment consisted of time hopping in both directions (see applicant's figure 6), all embodiments on a frame-by-frame basis in order to reduce interference problems, see also applicant's specification at e.g., page 10, lines 13-25. *Haartsen* teaches time hopping in both directions (i.e., *Haartsen* teaches applicant's figure 6) on a frame-by-frame basis. Thus the examiner notes since *Haartsen* teaches applicant's figure 6 (i.e., applicant's third embodiment), it would have been obvious to teach the other two embodiments as well (i.e., there is no distinct inventions with respect to 35 U.S.C. 101). Furthermore, as mentioned in applicant's specification, it does not matter whether time hopping is performed in the uplink or downlink since the invention relates to time hopping on a frame-by-frame instance, see e.g., applicant's specification at page 8, lines 5-15. As mentioned above, *Haartsen* teaches the above concept. As such, at issue is the other two remaining embodiments for which applicant attempts to argue. As mentioned during the interview on 9/20/2005, *Haartsen* teaches a second direction, see e.g., figure 3 labeled as prior art for *Haartsen*. The examiner has already previously acknowledged that a first direction may not be *explicitly* taught by *Haartsen* but would have been obvious since it may not be clear from the reference whether the time hopping scheme proposed applies to the uplink, downlink, or both the uplink and the downlink. Thus the *Scott* reference was used as a secondary reference to further strengthen the assumption that it would have been obvious to time hop in either direction. In further view of *Scott*, the examiner has withdrawn the previous obviousness rejection since although the secondary reference *Scott* teaches setting fixed and

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predetermined base slots (see e.g., claim 2), *Scott* may not clearly teach that *the time slot* is also predetermined and fixed since a time slot comprises *both* base and user slots (i.e., thus a base slot remains predetermined and fixed and not necessarily a time slot). Hence upon further reconsideration of applicant's arguments the rejection is withdrawn.

However, assuming the *Haartsen* reference only applies to *both* an uplink and downlink as argued by applicant (and respectfully disagreed by the examiner), the examiner notes that it would have been obvious to apply the reference for either the uplink or downlink direction (i.e., thus further teaching a first direction). As such, please note the new obviousness rejection using a new secondary reference to *Kotzin* where *Kotzin* teaches that it is well known in the art to use a hopping sequence in only one direction in order for either the base station or mobile station to receive proper measurements, or to meet the requirements for GSM, see e.g., column 2, lines 50-60 and column 3, lines 45-56. Thus the second limitation of a first direction is further met since one direction performs hopping and other direction does not perform hopping. As such, please see obviousness rejection below. As noted in the interview, the instant Office action is made non-final per applicant's request.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 19-30** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,393,007 B1 to *Haartsen et al.* ("*Haartsen*") in view of U.S. Patent No. 5,455,962 A to

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Kotzin et al. (“*Kotzin*”) and in further view of “Channel Assignment Schemes for Cellular Mobile Telecommunication Systems: A Comprehensive Survey” to *Katzela et al.* (“*Katzela*”).

As to **claim 19**, see *prior art* figure 3 of *Haartsen*. In particular, data is transmitted in bursts for using TDMA/TDD with one slot for TX and one slot for RX. Also shown is that each frame comprises a predetermined number *n* time slots on a frame- by-frame bases. In particular, the examiner note that the above reference explicitly teaches hopping in both an uplink and downlink direction and implicitly teaches hopping in either an uplink direction or downlink direction on a frame-by-frame basis.

However, since *Haartsen* may not explicitly teach frequency hopping in one direction such that the other direction uses predetermined and fixed time slots in each of the consecutive frames, the examiner notes the following obviousness rejection below.

Kotzin in combination with *Katzela* teaches the above limitation at issue in either the Background at column 2, lines 50-60 or in the Preferred Embodiment at column 3, lines 45-56 of *Kotzin* and in the section entitled Review of Channel Allocation Schemes taught by *Katzela*. In particular, *Kotzin* teaches that hopping can occur in only one direction (i.e., a “half-hopping format”). Although a frequency hopping appears to be taught by the reference, a time hopping scheme would also apply since if the receiving device is not aware of the hopping scheme (either frequency or time hopping) then the receiver cannot receive the beacon and obtain the necessary measurements for cell selection. Thus one skilled in the art would recognize that a time hopping scheme would also apply. Furthermore, in being non-hopping, the direction is by definition fixed. One skilled in the art could also argue a fixed scheme indirectly also teaches predetermined

time slots since the receiving device of the beacon must have prior knowledge on where to receive (i.e., which time slot or control channel) the beam information. However, assuming that above assumption may not be explicitly taught by *Kotzin*, *Katzela* further teaches the above underlining assumption since *Katzela* teaches that allocation schemes can be fixed (i.e., FCA), dynamic (i.e., DCA) or both (i.e., HCA) and where *Katzela* explicitly teaches that fixed schemes are “permanent” (i.e., predefined or static).

The examiner purposes to modify *Haartsen* to further clarify that the hop pattern could be applied to either the TX or RX side of the time frame thus explicitly teaching a first direction using fixed and predetermined time slots.

Thus the examiner notes that it would have been obvious to one skilled in the art prior to applicant's invention to further teach the limitation “transmission in said first direction (DL) occurs in predetermined *and fixed time* slots in each of the consecutive frames”. In particular, *Kotzin* provides two motivations for the above modification of either complying with the GSM specification, see e.g., column 2, lines 50-60 or in order for a device such as a mobile to detect and measure nearby stations, see e.g., column 2, lines 50-6 and column 3, lines 45-58. The examiner also notes a reasonable expectation of success since all three references relate to sending information on time slots.

As to **claim 20**, see similar reasoning for the rejection for claim 19.

As to **claim 21**, *Haartsen* teaches GSM in the background, see e.g., column 1, lines 25-50 where TDMA is GSM. *Kotzin* further teaches GSM, see the rejection above for claim 19.

As to **claim 22**, *Kotzin* also teaches that frequency hopping is possible, e.g., see column 16, lines 40-53. *Katzela* also teaches that frequency hopping is possible, see e.g., page 1, left-hand column. Examiner notes a same motivation as applied in the parent claim.

As to **claim 23**, see similar rejection to claim 21 where GSM is TDMA.

As to **claim 24**, *Haartsen* teaches assigning time slots to mobiles where the mobile stations are the users.

As to **claim 25**, *Haartsen* further teaches transmitting and receiving information in an uplink and downlink direction thus further teaching either a first or second transceiver device.

As to **claim 26**, see similar rejection to claim 21.

As to **claim 27**, see similar rejection to claim 22.

As to **claim 28**, see similar rejection to claim 23.

As to **claim 29**, see similar rejection to claim 24.

As to **claim 30**, see similar rejection to claim 25.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US005581548A teaches using different hop patterns for both the uplink and the downlink, see e.g., column 12, lines 8-20. Thus one might argue that if a hopping sequence includes no hopping then a predetermined and fixed assignment is taught for a first direction.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick W. Ferris whose telephone number is (571) 272-3123.

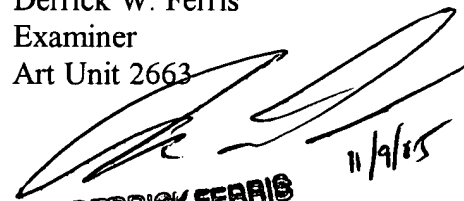
The examiner can normally be reached on M-F 9 A.M. - 4:30 P.M. E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571)272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


DWF

Derrick W. Ferris
Examiner
Art Unit 2663


DERRICK FERRIS
PATENT EXAMINER
11/9/15